

# Phospho-Dependant Regulation Of TFIP11 Splicing Factor

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## BACKGROUND

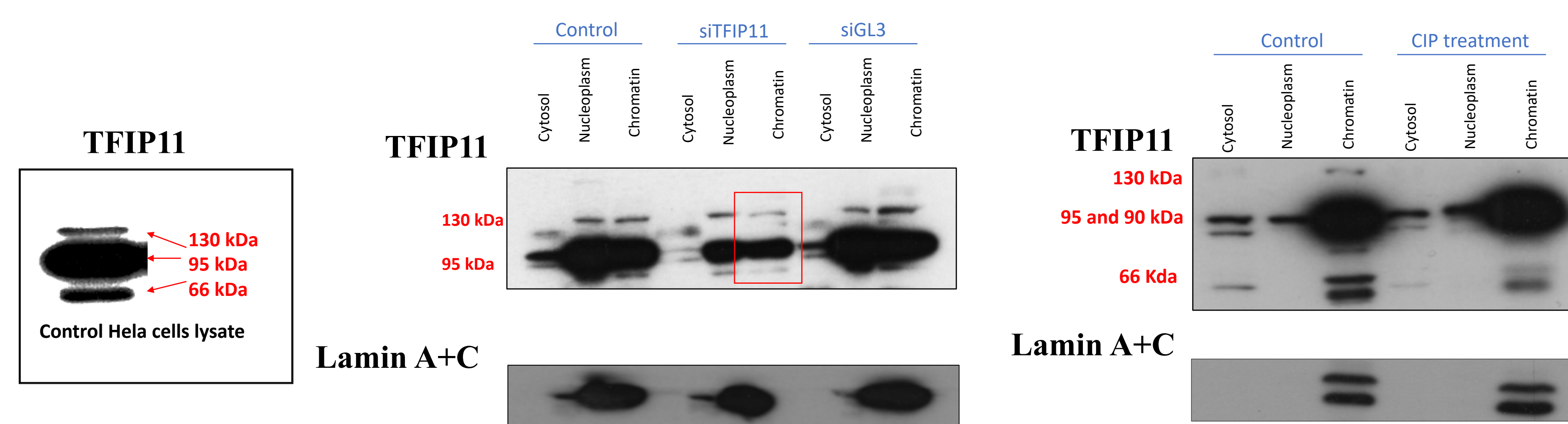
Pre-mRNA splicing is a fundamental process in mammalian gene expression contributing to protein diversity. Splicing factors are frequently phosphorylated by kinases. Such phosphorylation regulates their interactions with protein partners, and thus regulates splicing reactions. Our lab demonstrated that the splicing factor TFIP11 controls cancer cell-cycle progression by regulating splicing of a specific subset of pre-mRNA.

## AIM OF THIS STUDY

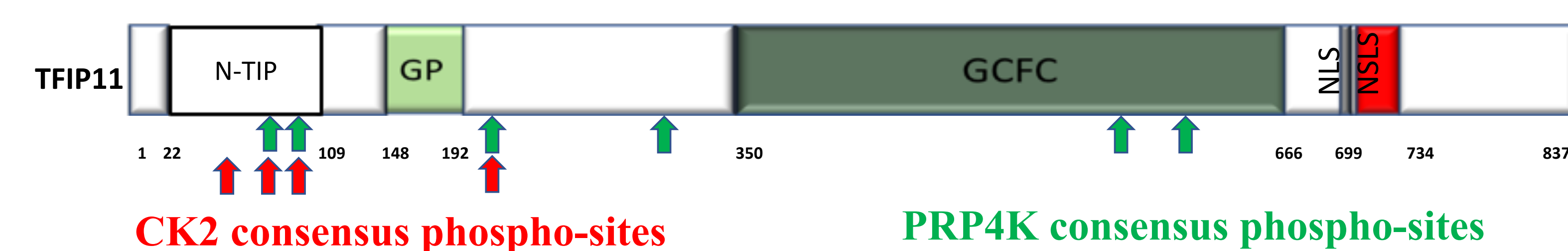
- 1) Identification of kinases regulating TFIP11 phosphorylation
- 2) Identification of phospho-residues of TFIP11 and the study of phosphorylation impact on TFIP11 activity.

## RESULTS

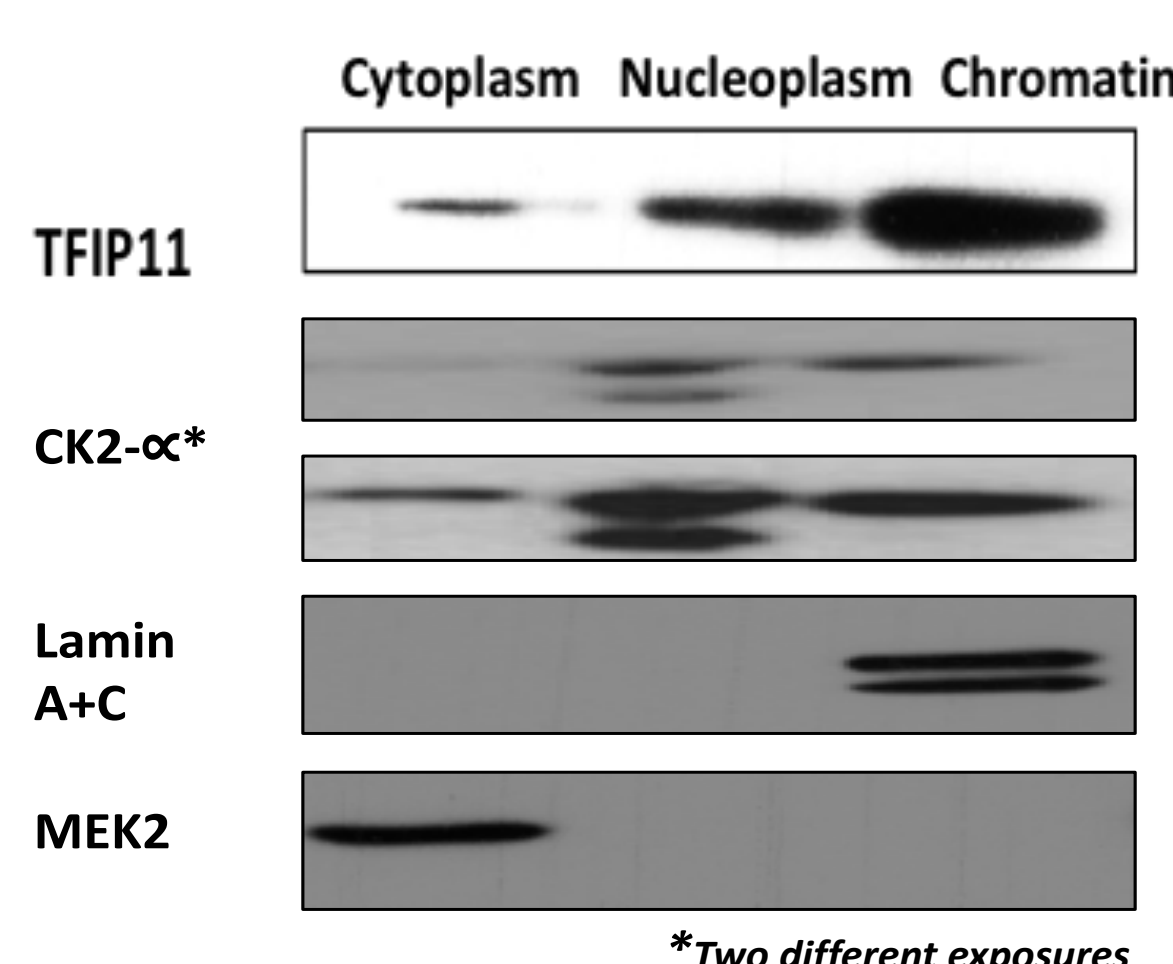
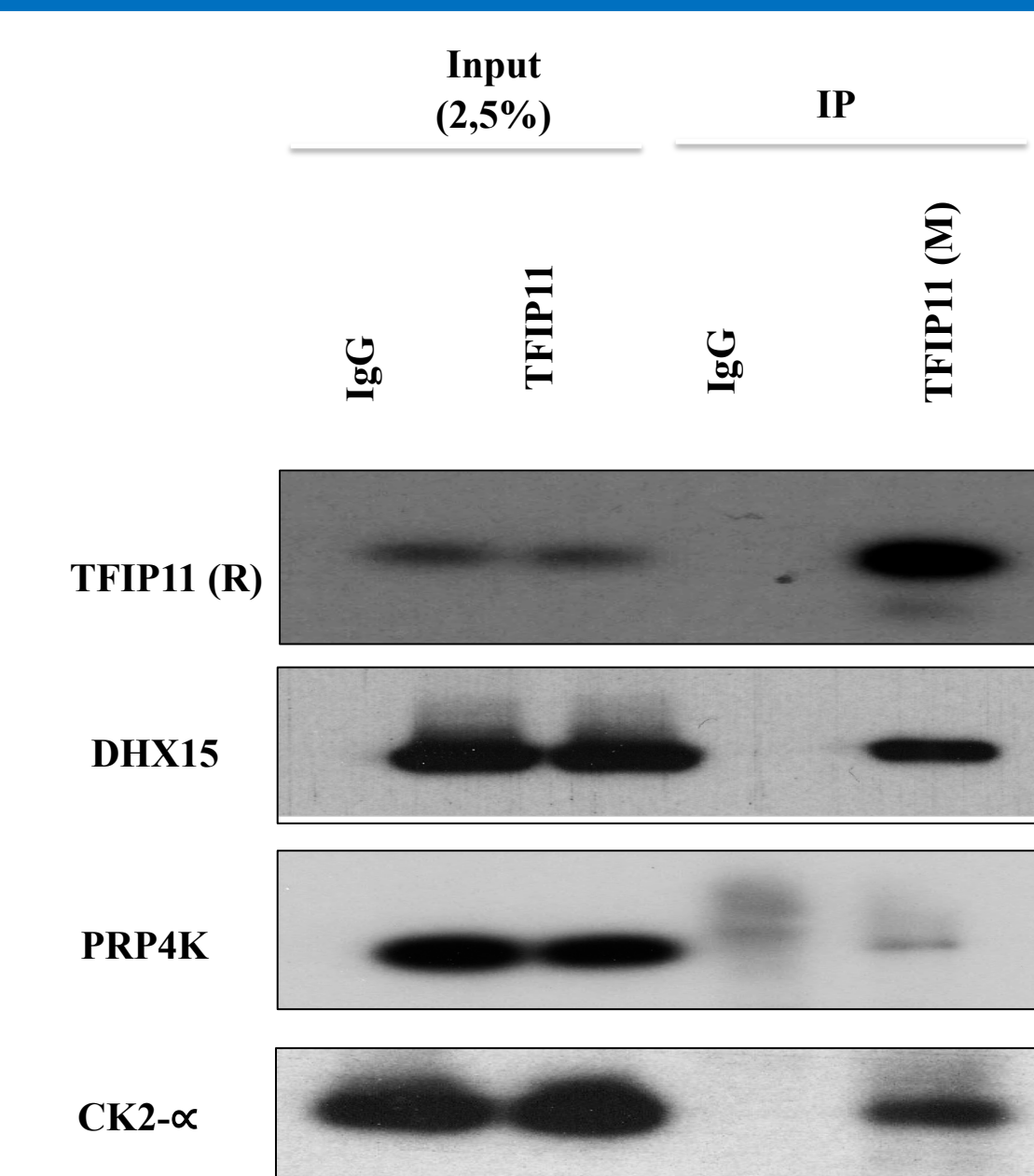
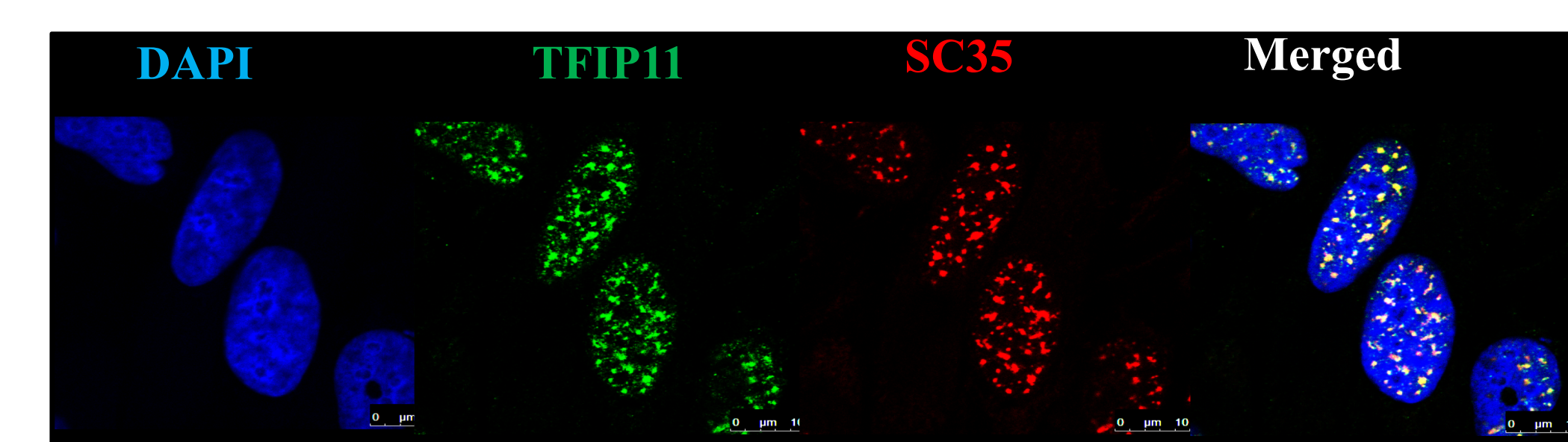
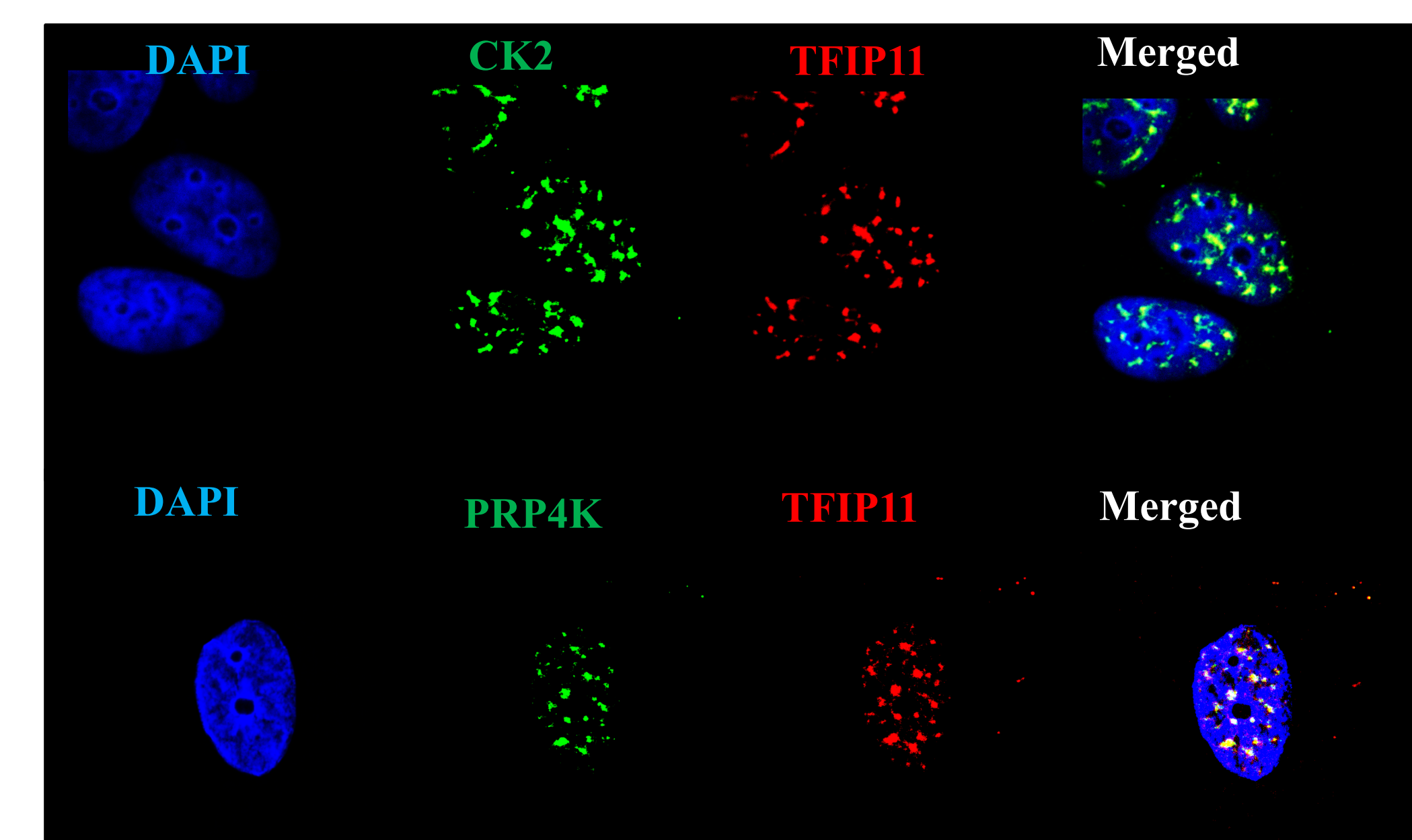
TFIP11 is a phosphoprotein showing specific phosphorylation bands in western blot. These bands decrease upon TFIP11 silencing and Calf lambda phosphatase (CIP) treatment.



TFIP11 peptide sequence has consensus and potential sites for PRP4K and CK2 (two kinases known to regulate the splicing activity)

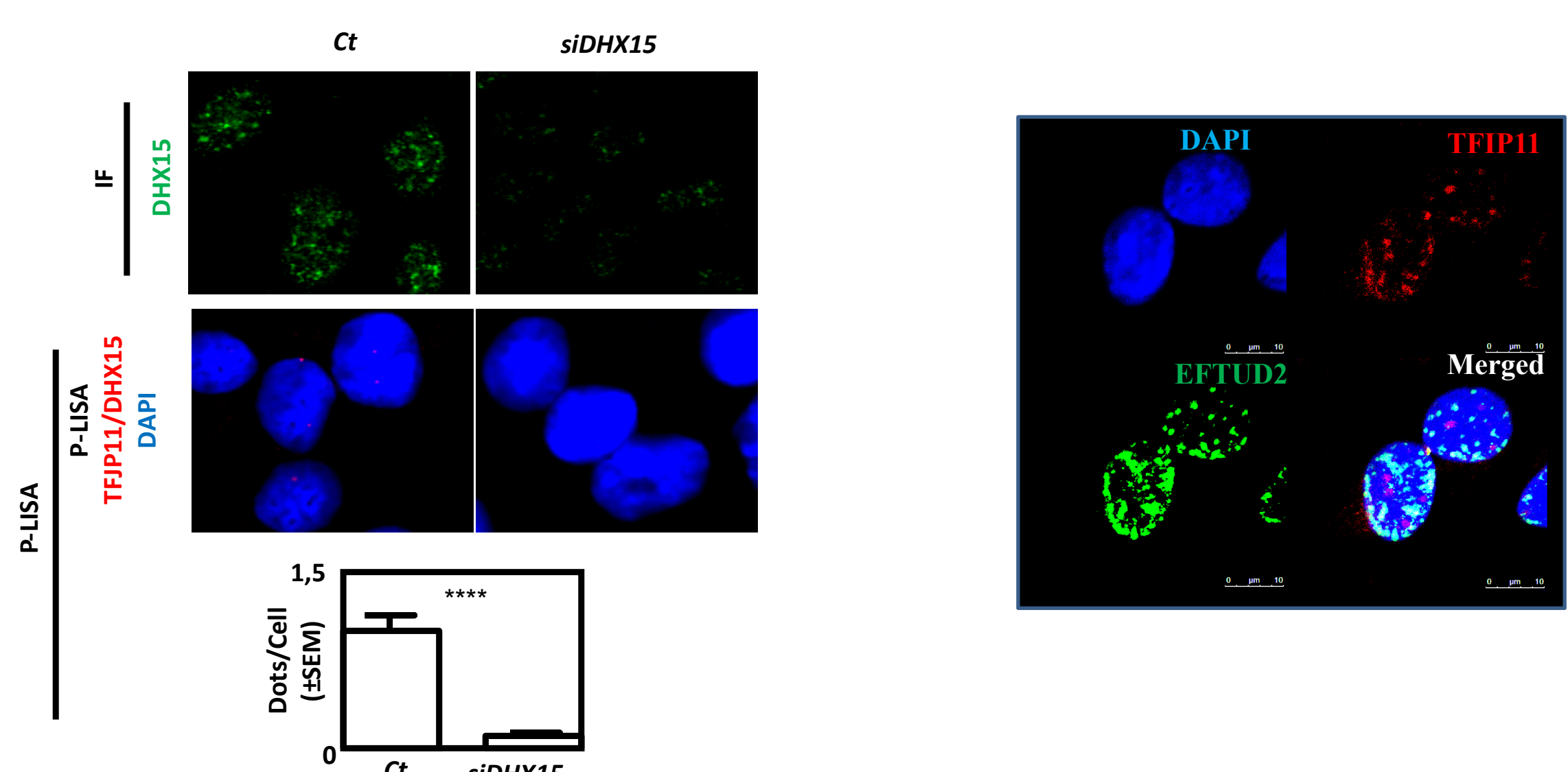
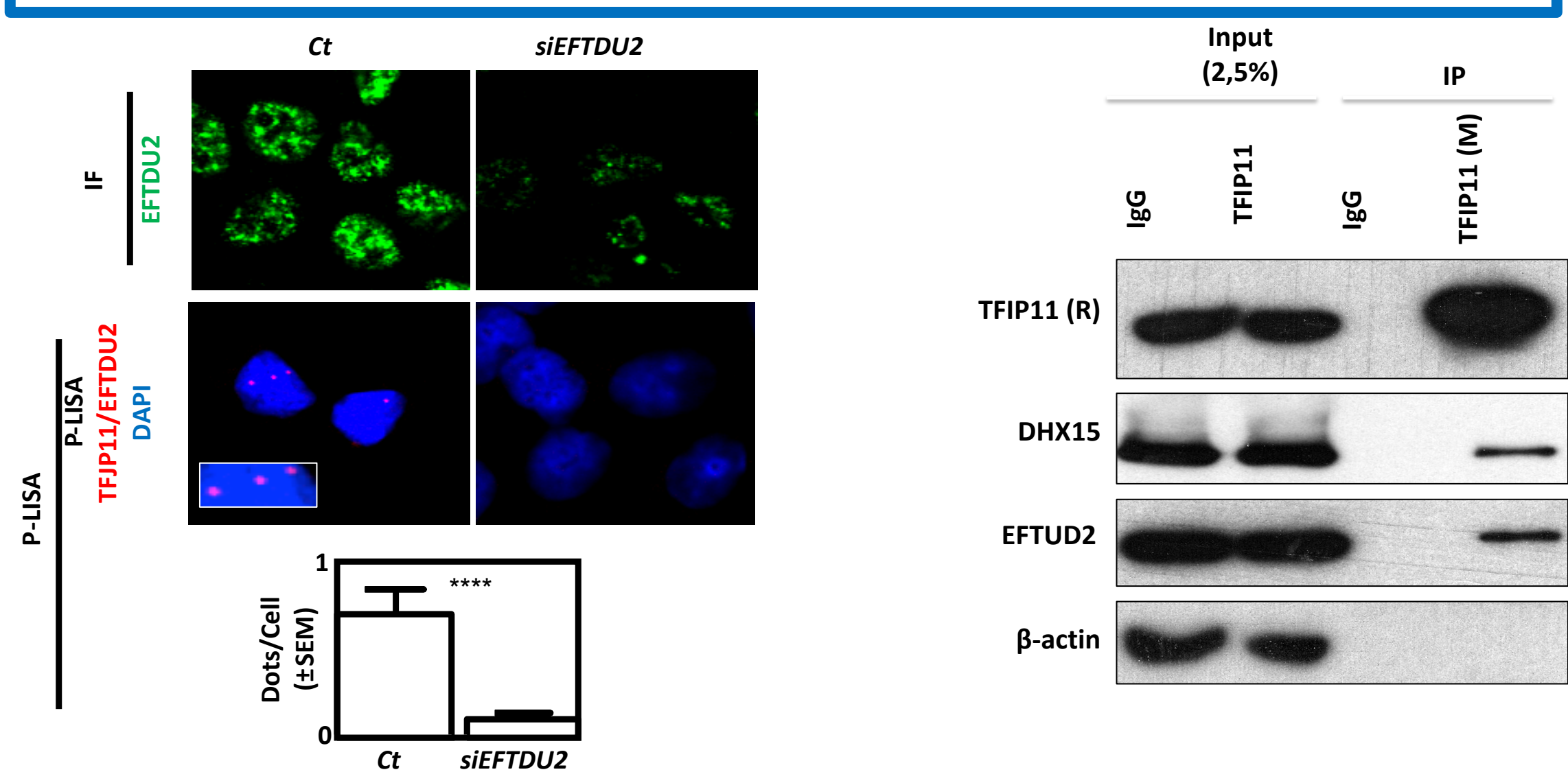


TFIP11 interacts and colocalizes with PRP4K and CK2 in the nuclear speckles

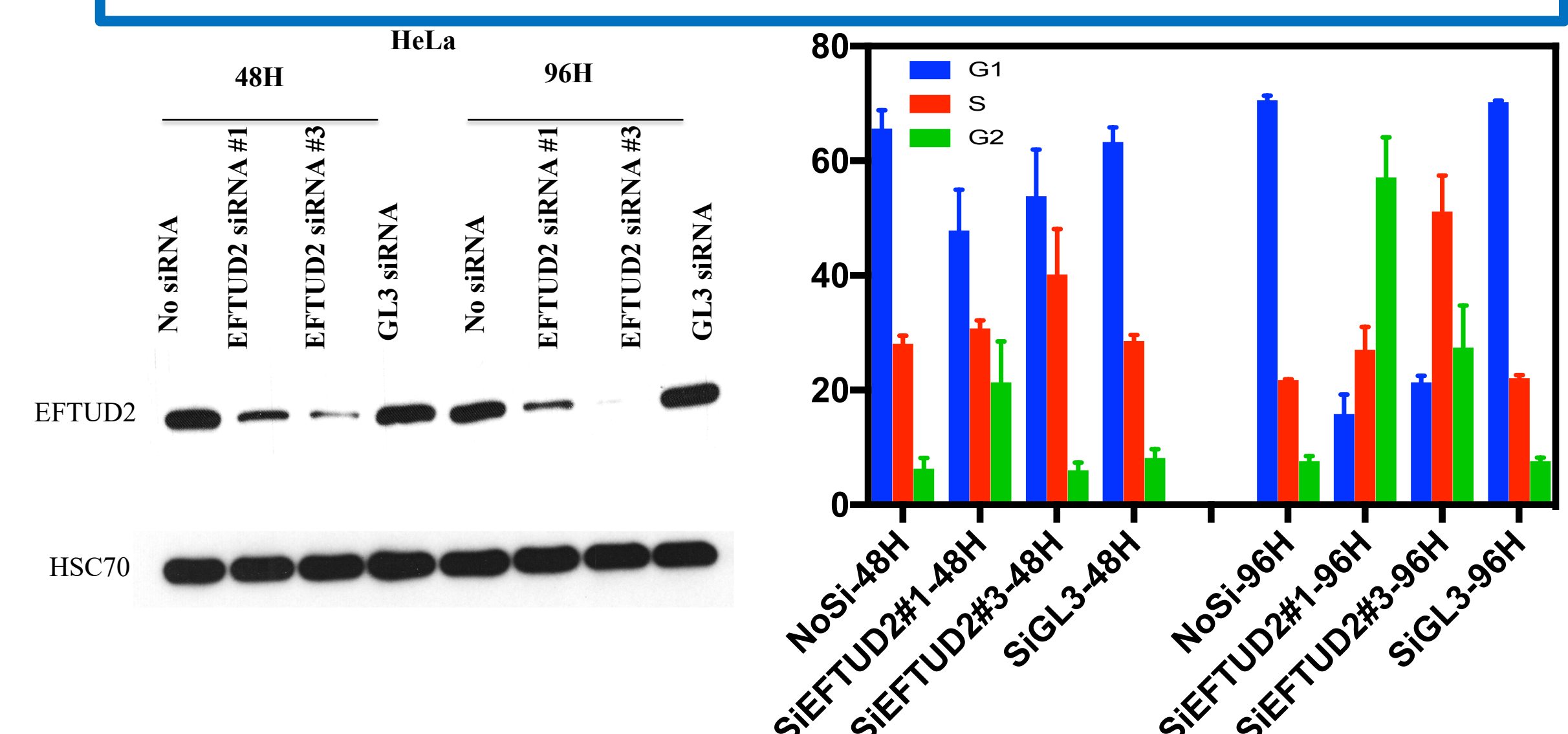


\*Two different exposures

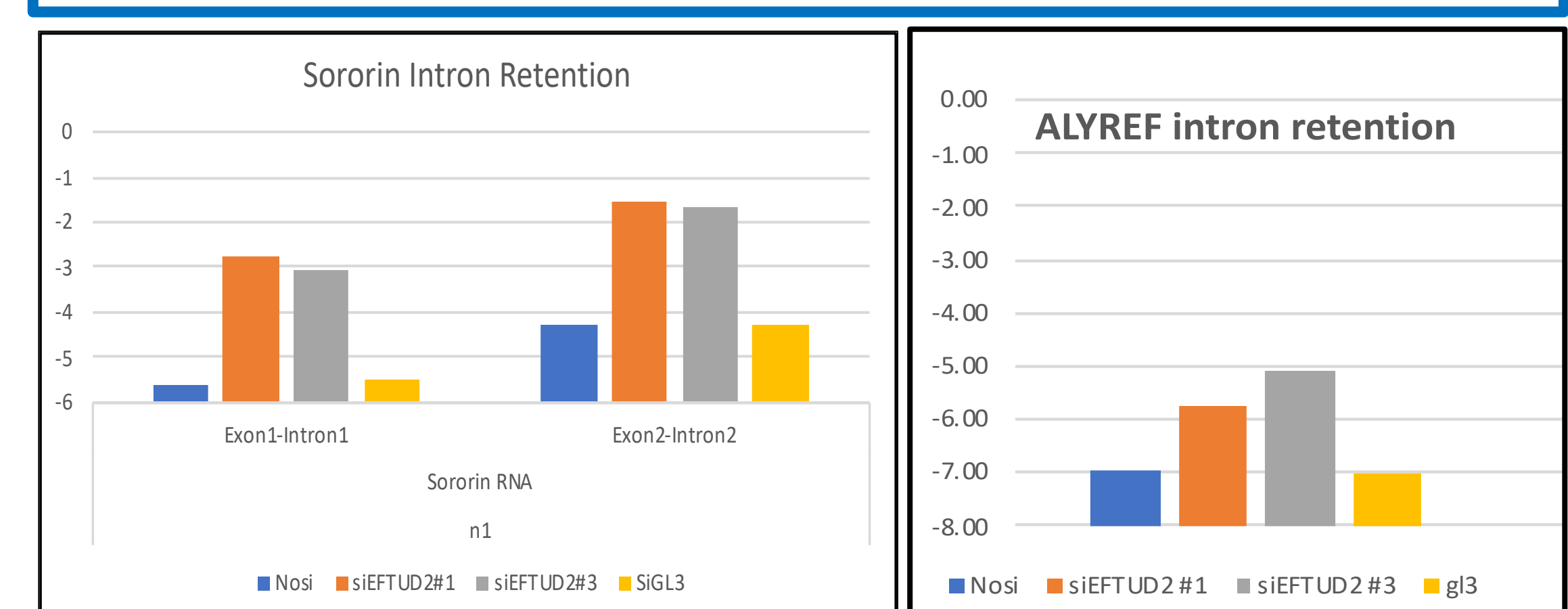
EFTUD2, a spliceosome GTPase, interacts and colocalizes with TFIP11



EFTUD2 and TFIP11 silencing lead to the same effects on cell cycle progression



EFTUD2 and TFIP11 silencing lead to the same intron retention on a subset of genes



## CONCLUSION

TFIP11 is a phosphorylated protein. Two Important kinases, known to regulate the splicing program, were identified as TFIP11 interactants: CK2 and PRP4K. These kinases have consensus phosphorylation sites on TFIP11 peptide sequence. An interesting interaction has been found between TFIP11 and EFTUD2 and both proteins seem to regulate the same splicing program. Preliminary PLA data shows that the inhibition of CK2 kinase modulates this TFIP11/EFTUD2 interaction.